



**FOREST SERVICE HANDBOOK
NATIONAL HEADQUARTERS (WO)
WASHINGTON, DC**

FSH 7709.59 – ROAD SYSTEM OPERATIONS AND MAINTENANCE HANDBOOK

CHAPTER 40 – HIGHWAY SAFETY PROGRAM

Amendment No.: 7709.59-2011-1

Effective Date: February 17, 2011

Duration: This amendment is effective until superseded or removed.

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Date Approved: 02/16/2011

Posting Instructions: Amendments are numbered consecutively by handbook number and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this handbook was 7709.59-2009-1 to FSH 7709.59.

New Document	7709.59_40	9 Pages
Superseded Document(s) by Issuance Number and Effective Date	7709.59_40 (Amendment 7709.59-2009-1, 02/05/2009)	7 Pages

Digest:

40.3 – Adds cross reference to FSM 7733.03. Revises policy by changing “must” to “should”. In paragraph 2, adds examples of appropriate safety considerations in the management of roadside vegetation. In paragraph 4, revises policy statement for required actions when high priority danger tree hazards are present to include mitigation of hazards and road closures when hazards cannot be mitigated.

40.4a – Adds regional forester responsibilities in paragraph 3 and 4 to: (1) establish regional criteria for the education, training, and experience of persons qualified to identify tree hazards and (2) coordinate with forest health protection staff in the identification and evaluation of tree hazards.

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Digest--Continued:

40.4b – Clarifies direction that forest supervisors are responsible to ensure action is taken when high priority danger trees are present.

40.5 – Adds definitions for “Administrative NFS Road,” “Average Daily Traffic,” “High Priority Danger Tree Hazard,” and “Public Road.”

41.5 – Adds language explaining the desirability of grade separation of the road and the railway when new highway/rail crossing are constructed.

41.7 – Revises and clarifies direction that condition surveys (1) are part of the safety management system for public roads, (2) should be done on public roads annually, (3) should be considered after major events such as storms, and (4) are optional on administrative NFS roads. Revises specific direction on danger tree hazards to clarify the required actions when high priority hazards are present. This includes mitigation of the hazards and road closures when the hazards cannot be mitigated.

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40.1 – Authority

1. The Highway Safety Act (23 U.S.C. 401 *et seq.*) establishes a national highway safety program directed by the Secretary of Transportation. The act authorizes the Secretary of Transportation to assist other Federal agencies with development of highway safety policies for federal roads and with implementation of those policies.
2. Title 23, Code of Federal Regulations, Subchapter F, Subpart A, section 500.108 contains requirements for a highway safety management system.
3. Title 23, Code of Federal Regulations, Part 655, Subpart F, section 655.603 makes the Manual on Uniform Traffic Control Devices (MUTCD) the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel and specifically approves the MUTCD for use in federally administered areas where a federal agency controls the highway or supervises traffic operations.
4. Title 36, Code of Federal Regulations, Subpart B, section 212.52(2) requires responsible officials to close NFS roads immediately when the officials determine that motor vehicle use on the roads is directly causing or will directly cause considerable adverse effects on public safety.

40.2 – Objective

See FSM 7733.02 for general objectives of safety provisions for NFS roads.

40.3 – Policy

See FSM 7733.03 for additional policy on safety for NFS roads that are public roads and safety of bridges on NFS roads.

1. Safety is a critical consideration in road operation and maintenance and should be taken into account along with other applicable considerations, such as environmental protection (sec. 40.1, para. 4).
2. NFS roads should be managed for safe passage by road users, including appropriate management of roadside vegetation involving considerations such as motorist sight distance, clear visibility of road signs, and identification and mitigation of danger tree hazards per section 41.7, paragraph 2.
3. Identification of danger tree hazards should be performed by a qualified person as defined in this chapter.

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4. Action should be taken as soon as practicable when high-priority danger tree hazards have been identified along NFS roads or road segments. Action includes mitigation and, if mitigation is not possible, closing the road, per section 41.7, paragraph 2.

40.4 – Responsibility

FSM 7733.04 assigns responsibilities for safety measures on NFS roads. This includes specific forest supervisor responsibilities for identification of aspects of NFS roads which are potentially high hazard, developing prioritized corrective measures for identified hazards, eliminating hazards to the extent permitted by funding levels, and providing for trained personnel to make periodic road safety inspections.

40.4a – Regional Foresters

It is the responsibility of regional foresters to:

1. Provide regional guidance regarding identification and prioritization of danger tree hazards to meet highway safety program requirements.
2. Provide technical assistance to Forest Service staffs regarding evaluation of danger tree hazards.
3. The extent necessary or appropriate, establish regional criteria for the education, training, and experience of a qualified person as defined in section 40.5.
4. Coordinate with forest health protection staff in development of any regional criteria for a qualified person and in provision of technical assistance to administrative units on evaluation of danger tree hazards.

40.4b – Forest Supervisors

It is the responsibility of forest supervisors to:

1. Have a qualified person available to assess danger tree hazards along NFS roads and to recommend mitigation of danger tree hazards in accordance with this chapter.
2. Ensure that action is taken as soon as practicable when there are high-priority danger tree hazards along NFS roads or road segments per section 41.7, paragraph 2.

40.5 – Definitions

Administrative NFS Road. Any NFS road that is not a public road.

Average Daily Traffic. The daily number of vehicles on a route, determined by dividing the annual number of vehicles on the route by 365.

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Danger Tree. A standing tree that presents a hazard to people due to conditions such as deterioration of or damage to the root system, trunk, stem, or limbs or the direction or lean of the tree (29 CFR 1910.266(c); FSH 6709.11, glossary).

High-Priority Danger Tree Hazard. A road or road segments where danger trees are determined to be highly likely to fail and where those failures would be highly likely to cause injuries.

Public Road. A road that is:

1. Available, except during scheduled periods, extreme weather, or emergency conditions;
2. Passable by four-wheel standard passenger cars; and
3. Open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. (23 U.S.C. 101(a)(27); 23 CFR 460.2(c) and 660.103).

Qualified Person. A person who has knowledge, training, and experience in identifying danger trees.

41 – HIGHWAY SAFETY PROGRAM COMPONENTS

The Forest Service highway safety program is composed of the following components in sections 41.1 through 41.9.

41.1 – Traffic Engineering Services

Utilize traffic engineering skills and techniques to reduce the number and severity of crashes on NFS roads.

1. Engineering Skills. All administrative units should have access as needed to staff with traffic engineering skills (FSM 7733.04b and 7733.04c).
2. Engineering Principles and Road Safety Audits. Use traffic engineering principles in the design and maintenance of NFS roads and in the application of traffic control devices. Utilize road safety audits to review road construction or reconstruction projects at the design stage for compliance with safety standards.
3. Traffic Control Devices. Maintain an inventory of traffic control devices, including signs, in the Infra Travel Routes Module. As appropriate and practicable, inspect signs and other traffic control devices periodically, and replace them as necessary.

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41.2 – Identification, Investigation, and Surveillance of Accident Locations

Guidelines for the identification, investigation, and surveillance of accident locations are in section 51 of this handbook.

41.3 – Design and Construction

1. Design Standards. See FSM 7720 and FSH 7709.56, Road Preconstruction Handbook, for design standards for construction and reconstruction of NFS roads.
2. Temporary Traffic Control at Construction Sites. Require compliance with Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) for temporary traffic control devices and procedures (including flagging) in construction zones on NFS roads.

41.4 – Roadside Design

On NFS roads with up to 400 average daily traffic (ADT), it is generally not appropriate to provide roadside features, such as clear zones and barriers that minimize the risk and severity of crashes when vehicles leave the roadway. These features may be incorporated in designs when advised by engineering judgment. On roads with more than 400 ADT, the procedures in the American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide should be followed.

41.5 – Highway-Rail Grade Crossings

Identify all highway-rail grade crossings on NFS roads and, in consultation with the States, develop a program for eliminating hazards at those crossings. Sign all highway-rail grade crossings in accordance with the MUTCD. The Forest Service or its cooperators and contractors are usually responsible for the cost of these signs, as the railroads were usually built before NFS roads. When new railroads are constructed, strive to eliminate highway-rail grade crossings through use of structures such as bridges, large culverts, and tunnels. Grade separation eliminates the potential for collisions, and the gates and other devices required for new at-grade crossings are expensive to construct and maintain.

41.6 – Roadway Maintenance

NFS roadways and roadsides for movement of traffic should be maintained commensurate with the operational maintenance level assigned to the road (ch. 60). Temporary traffic control measures during roadway maintenance operations must comply with Part 6 of the MUTCD. Road maintenance includes mitigating danger tree hazards that threaten safe use of the forest transportation system.

41.7 – Hazard Identification and Correction

1. General.

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Road features and traffic operations that have caused or have the potential to cause accidents should be analyzed as part of planning and programming for NFS road development and maintenance projects and as part of periodic condition surveys.

On low-volume roads, crash history is seldom a reliable indicator of significant safety problems. Making comparative analyses between hazardous sites also may be difficult because of the infrequency of accidents. Accordingly, use common sense and judgment to determine safety deficiencies and the priority for corrective action. Accident rate comparison formulas commonly used for high-volume highways are not appropriate.

Annual maintenance of safety features, such as signs and traffic control devices, is a requirement of the Safety Management System for public roads (FSM 7733.2). Condition surveys are necessary for determination of maintenance needs of those safety features and thus should be performed annually. Additional condition surveys may be required after major storms and similar events that could significantly affect the condition of the roads, create new safety hazards, or create emergency maintenance needs that force revision of annual maintenance plans.

Subject to availability of funding and other resources, condition surveys should be conducted on administrative NFS roads. NFS roads that are closed should be checked for obvious hazards prior to being opened.

Procedures for administrative and public road users to report road hazards should be established. Reports of unsafe conditions should be investigated as soon as practicable.

2. Danger Tree Hazards.

a. Danger tree hazards along NFS roads should be evaluated section by section and should be prioritized as high, medium, or low based on the risk to road users from potential tree failure. Determinations of risk should consider both the probability incidents involving failed trees will occur and the severity of incidents should they occur.

b. High-priority danger tree hazards (sec. 40.5) are likely to directly cause “considerable adverse effects on public safety” (36 CFR 212.52(b)(2)) and should be addressed as soon as practicable. Action that is deemed appropriate with respect to high-priority hazards should not be delayed to accommodate commercial removal of trees. To the extent practicable, mitigate high-priority danger tree hazards along NFS roads, such as by removing all or part of the trees involved. Close the affected road segment if the hazards cannot be mitigated (sec. 40.3, para. 4).

c. Mitigation of medium-to-low-priority danger tree hazards along NFS roads is not considered time-critical. Strategies utilizing the sale of forest products, including commercial timber sales and land stewardship contracts, may be employed to mitigate danger tree hazards along these roads.

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d. The priority of danger tree hazards may increase as trees deteriorate.

(1) Low-to-medium-priority danger tree hazards along NFS roads should be monitored, to the extent practicable and feasible, for increases in hazard priority due to tree deterioration. When a danger tree hazard along an NFS road moves from medium to high priority, the guidance in section 41.7, paragraph 2b, applies.

(2) Where strategies utilizing the sale of forest products are being employed to mitigate danger tree hazards before they become high priority, include in the project file an estimate by a qualified person of the month and year when high priority hazards are likely to occur. To the extent practicable, timber sales should be scheduled so as to mitigate the danger tree hazards by that date.

e. All available methods for mitigation of danger tree hazards should be considered and applied as appropriate to local situations. These methods include but are not limited to commercial timber sales, land stewardship contracts, funds for burned area emergency rehabilitation, sales of firewood for personal use, and expenditure of appropriated funds.

f. Road maintenance, including mitigation of danger tree hazards, may be subject to a categorical exclusion from analysis and documentation in an environmental assessment or environmental impact statement under certain circumstances (36 CFR 220.6(d)(4); FSH 1909.15, sec. 31.12, para. 4).

g. Mitigation of danger tree hazards should always be included as part of an administrative unit's annual program of road maintenance work. In situations where mitigation of tree hazards significantly impact a unit's entire road maintenance program, include specific references to the resources needed for and committed to ongoing mitigation in the annual road maintenance plan (FSM 7732.11).

41.8 – Incident Management

Temporary traffic control measures during incident management activities must comply with Part 6 of the MUTCD and the provisions of this chapter.

41.9 – Forest Service Employees and Forest Service-Owned Equipment

Requirements for the safe operation of Forest Service-owned or -leased vehicles and equipment by Forest Service personnel on National Forest System roads are found in FSH 6709.11, Health and Safety Code Handbook, chapter 10, and the Driver-Operator Guide, EM-7130-2.